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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/450,364	11/29/1999	LUIS FELIPE CABRERA	777.246US1	7529

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EXAMINER

ANYA, CHARLES E

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 10/24/2003

9
Serial

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/450,364

Applicant(s)

CABRERA ET AL.

Examiner

Charles E Anya

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 9, 11 – 19 and 21 – 23 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,457,139 B1 to D'Errico et al.

As to claim 1, D'Errico teaches Storage Management System (Figure 1 Col. 1 Ln. 15 – 67, Col. 2 Ln. 1 – 30), a Volume Provider (File/Logical Volume Mapping Layer 23 Col. 15 Ln. 3 – 29), one or more storage devices (Disk Drive 5a – 5b (Figure 1), "...physical layer..." Col. 15 Ln. 3 – 29), a Storage Subsystem (Storage System 3 Col. 15 Ln. 3 – 29) and a Application Programming Interface ("application programming interface..." Col. 15 Ln. 3 – 29).

As to claim 2, D'Errico teaches the access information that includes a desired level of fault tolerance ("fault tolerance..." Col. 14 Ln. 49 – 67).

As to claim 3, D'Errico teaches the access information that includes input/output patterns ("type of access..." Col. 14 Ln. 21 – 35).

As to claim 4, D'Errico teaches access pattern that indicate sequential reads and writes ("sequential read or write..." Col. 7 Ln. 60 – 65).

As to claim 5, D'Errico teaches the access information that includes optimization preferences ("information..." Col. 13 Ln. 8 – 14).

As to claim 6, D'errico teaches the logical storage volume as a function of the storage access information (Col. 13 Ln. 8 – 14).

As to claim 7, D'Errico teaches a Software Application ("logging facility..." Col. 18 Ln. 38 – 67, Col. 19 Ln. 1 – 67).

As to claim 8, see the rejection of claim 7.

As to claim 9, D"Errico teaches reconfiguring the storage volume based on monitored access information (Col. 9 Ln. 21 – 26).

As to claim 11, see the rejection of claims 1 and 6.

As to claim 12, see the rejection of claim 2.

As to claim 13, see the rejection of claim 3.

As to claim 14, see the rejection of claim 4.

As to claim 15, D'Errico teaches the storage access information to include a request size ("size..." Col. 17 Ln. 39 – 59).

As to claim 16, see the rejection of claim 5.

As to claim 17, see the rejection of claim 9.

As to claim 18, see the rejection of claim 9.

As to claim 19, D'Errico teaches the configuring to include resolving conflicts (Col. 18 Ln. 38 – 67, Col. 19 Ln. 1 – 67).

As to claim 21, see the rejection of claims 1 and 6.

As to claim 22, see the rejection of claim 9.

As to claim 23, see the rejection of claim 1.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24 – 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,457,139 B1 to D'Errico et al.

As to claim 24, claim 2 meets claim 24 except for a second interface. Although, D'Errico does not explicitly teach a second interface, the application programming interface (Col. 15 Ln. 3 – 29) would obviously implement a second interface because the application programming interface provides fault tolerance.

As to claim 25, see the rejection of claims 3 and 25.

As to claim 26, see the rejection of claims 4 and 25.

As to claim 27, claim 5 meets claim 27 except for a third interface. Although, D'Errico does not explicitly teach a third interface, the application programming interface (Col. 15 Ln. 3 – 29) would obviously implement a third interface because the application programming interface provides attribute that includes optimization parameters.

Claims 10, 20 and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,457,139 B1 to D'Errico et al. in view of Blumenau et al.

As to claim 10, D'Errico does not teach the application programming interface that conforms to component object model (COM).

Blumenau does not explicitly teach the application programming interface that conforms to component object model (COM); however, Blumenau does teach implementing the system in a programming language that includes object-oriented language. Being an object-oriented language, COM can therefore, obviously, be used to implement the application programming interface of D'Errico.

As to claim 20, see the rejection of claim 10.

As to claim 28, see the rejection of claim 10.

Response to Arguments

3. Applicant's arguments filed 6/9/03 have been fully considered but they are not persuasive.

The Examiner disagrees with Applicant's assertion that D'Errico does not teach or suggest a volume provider that presents an API and does not teach or suggest an API for receiving behavioral attributes of the storage volume.

Firstly, whether the application programming interface (API) presented by the volume provider is located in the host computer or the storage system is not brought out in the claims, thus not claimed and as a result is not considered. By the way the API is not solely provided by the storage system. Also, the fact that the host computer and storage

system may be separate is not claimed and as such is not considered. Therefore, Applicant's conclusion that by solely providing the API in the storage system and having a barrier between the host computer and storage system the D'Errico prior art reference fails to teach or suggest a volume provider that presents an API is not claimed and is not considered.

Applicant's suggestion that the API of D'Errico is for only reporting physical mapping information back to the host computer is incorrect.

Let's assume for a moment that the Applicant is right which he is not, how does the API get the physical mapping information that it reports the host computer? If the API manufactures this physical information internally, which I doubt is what the Applicant is suggesting, then the Applicant would be right, otherwise API must receive this physical information from somewhere. If it is true that the API receives the physical information, which it does, it would be therefore true that the API is "for receiving information".

Now going to the claimed invention the API is presented by the volume provider and is for receiving storage access information that characterizes behavioral attributes of the logical volume. The D'Errico reference in column 15 lines 10 – 29 describes an API defined **between** the host computer and the storage system that enables host computer to provide a request to the storage system for information relating to the physical mapping for a particular **logical volume** and information relating to certain characteristics of the physical devices on which the logical volume is stored.

I know that it would be safe to say that this request have to be fulfilled and returned to the requester, the host computer. The API would have to receive this information from

the storage system and provide it to the host computer. This information is the physical mapping for a particular logical volume and characteristics of the physical devices on which the logical volume is stored as explained above. This information is necessary for accessing storage information and is the genetic code (if I may use the word) of the logical volume. And if this were to be incorrect why would this information be used to configure data amongst the logical volume (Col. 13 Ln. 8 – 14).

Applicant also argues that the D'Errico prior art reference does not teach or suggest configuring or changing the logical volumes. Again the Examiner disagrees. The prior art reference of D'Errico is replete with instances of configuring the logical volume. Referring Applicant back to column 15 lines 10 – 29, the information relating to the physical mapping for a particular logical volume would be used "to configure data amongst the logical volume".

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E Anya whose telephone number is (703) 305-3411. The examiner can normally be reached on M-F (8:30-5:30) First Friday off.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7240 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Charles E Anya
Examiner
Art Unit 2126

